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EXAMINER	
MENEFEE, JAMES A	

ART UNIT	PAPER NUMBER
2828	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,597	JOHNSON, BRAD V.	
	Examiner	Art Unit	
	James A. Menefee	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to applicant's reply filed 2/27/2006. No amendments were made, and claims 1-36 remain pending.

New grounds of rejection are made below based on the newly cited reference to Danielmeyer (US 3,676,799). Previously the examiner focused on the tuning etalon being translated through the beam path as described in the specification. The claims, however, do not require translation (except for claim 35, which describes "means for magnetically actuating," thus invoking the actuation of the specification, which is only drawn to translating). See the rejections based on Danielmeyer below.

The remaining rejections are maintained from the prior action with the further clarification that the examiner is taking magnetic and mechanical translation to be equivalents. See the rejections below.

Applicant's arguments are still applicable to the present rejections and are rebutted below. This action is made non-final in light of these new grounds of rejection.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No. 6,788,724 in view of Missey et al. (US 6,754,243).

'724 appears to clearly claim all of the elements described in the presently claimed invention, including tuning elements, driver, gain medium, reflectors, grid generator, hermetically sealed housing, carbon drain, moisture trap, and inert atmosphere. It is not explicitly claimed that the tuning element is an etalon; however claim 22 recites "means for tuning" the laser. This invokes 35 U.S.C. 112 6th par., therefore one must look to the specification to understand the scope of the claims. The laser is tuned using an etalon 26, and therefore an etalon is claimed.

There is not claimed the magnetic coupling and associated magnetic elements. This is taught by Missey with motivation as in the below 103 rejections.

It is noted that the examiner understands that in a double patenting rejection one may not typically use the disclosure as prior art, only the claims. However, in the above patent, the use of means-plus-function limitations brings the structure of the specification, viz. the etalon, into the claims. Since the etalon structure is incorporated into the claims it may be used in the double patenting rejections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-5, 23, 27-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Danielmeyer US 3,676,799). See Fig. 1.

Regarding claim 1, Danielmeyer discloses an optical apparatus comprising a tuning etalon 15 positioned in a light beam (emitted by laser medium 10), and a drive element magnetically coupled to the tuning etalon. See col. 2 line 20, describing that the etalon may be magneto-optic; that is, the refractive index of the etalon will be changed due to an applied magnetic field. Thus a "drive element magnetically coupled" to the etalon must necessarily be present to provide said magnetic field.

Regarding claim 23, Danielmeyer discloses a method for operating a laser comprising positioning a tuning etalon 15 in a light beam (from laser medium 10), magnetically coupling a drive element to said tuning etalon (as described above regarding claim 1), and actuating said tuning etalon via magnetic coupling between the tuning etalon and the drive element. The examiner considers that driving a magneto-optic element to change its refractive index may be considered "actuating." While this may be a broad interpretation, it is considered reasonable. See Cao, cited but not relied upon under "Conclusion" below.

Regarding claims 4 and 27, Danielmeyer discloses gain medium 10 as claimed.

Regarding claims 5 and 28, Danielmeyer discloses reflector 11 as claimed.

It is noted that Danielmeyer is clearly not the same as applicant's invention—a tuning etalon that is magnetically translated. If applicant adds such limitations to the claims, the rejections based on Danielmeyer, both above and below, would be withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-5, 8-10, 23-24, 27-28, and 31-32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zorabedian (US 6,108,355) in view of Missey.

Independent claims:

Regarding claims 1, 23, and 35, Zorabedian discloses an optical apparatus comprising tuning etalon 162 positioned in a light beam, and a drive element 160 driving the tuning element so that it translates up and down relative to the beam. It is not disclosed that the drive element is magnetically coupled to the tuning element. Missey teaches that a magnetic actuation may be done to translate an element up and down relative to the beam. Col. 6 lines 12-14. It would have been obvious to one skilled in the art to use the magnetic actuation as an alternative means for translation of the tuning element, as taught by Missey.

The teachings of Missey alone may not be enough to support an obviousness rejection, in that Missey does not suggest some motivation to use magnetic actuation rather than Zorabedian's

mechanical actuation. An obviousness rejection may be supported, however, by substituting equivalents known for the same purpose. *See* MPEP 2144.06. In this case, magnetic and mechanical actuation are deemed to be equivalents that accomplish the same purpose, therefore providing support for the obviousness rejection. "In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents." *Id.* (citing *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958). The equivalency in this case is recognized in the prior art, as Missey notes that magnetic actuation can be used instead of typical MEMS actuation. The equivalents provide the same purpose, namely a translation of an optical element. This appears similar to *Smith v. Hayashi*, 209 USPQ 754 (Bd. of Pat. Inter. 1980), where the Board found obviousness based on substitution of equivalents. In *Smith*, the mere fact that the equivalents functioned the same in the same environment was not enough to establish obviousness; the Board found, however, that because there was evidence in the same disclosure that both equivalents were known to be used in the same art for the same purpose, this "present[ed] strong evidence of obviousness in substituting one for the other." *Id.* at 759. Similarly, Missey provides evidence in the same disclosure that the two alleged equivalents were known to be used in the same art for the same purpose, thus providing "strong evidence" of the obviousness of substituting one for the other.

Regarding claims 8 and 31, the claims are combinations of the limitations of claims 1 and some of the dependent claims (i.e. claim 24), and thus are taught as shown above and below.

Dependent claims:

Regarding claim 4, and 27, Zorabedian discloses gain medium 102 emitting the beam.

Regarding claims 5, 10, 18, 28 Zorabedian teaches reflector 122 positioned after the tuning element.

Regarding claims 9 and 32 there is taught a drive element and magnetic elements as described below with respect to claim 24.

Regarding claim 24, Missey's translation system does teach a driver 26 for driving the translation. It is not explicitly taught in Missey that magnetic elements are coupled to the element to be translated as well as the driver, with the magnetic actuation being done via the magnetic elements. While Missey describes magnetic actuation very broadly, the specifics are not described. However these specifics would be inherent to the magnetic actuation. The magnetic elements would necessarily be located on the element to be translated, i.e. the tuning element, and on the driver, so that the translated tuning element may actually be translated magnetically. There is included a driver to cause the translation, and the element that is actually translated. In order for there to be magnetically actuated translation, there must be an interaction between magnets. Since there is a driver for causing the translation, logically a magnetic element must be coupled to the driver. Since the etalon will be magnetically driven, then logically there must be a magnetic element coupled to the etalon. The etalon itself will not be magnetic, therefore the examiner sees no other explanation for the magnetic actuation to operate. This reasoning appears to be technically sound, and therefore appears to satisfy the reasoning required to show inherency.

Regarding claim 34, the claim is a combination of limitations described above.

Claims 2-3, 7, 12, 15-18, 22, 25-26, 30, 33-34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zorabedian and Missey as applied to the claims above, and further in view of Aikiyo (US 6,396,023). Zorabedian and Missey teach the limitations of the claims as in the above rejections, but do not disclose that the device should be hermetically sealed (and as in claims 15 and 22 that the hermetically sealed package contains an inert atmosphere). Aikiyo teaches that a laser device may be hermetically sealed in an inert atmosphere. Col. 2 line 42 – col. 3 line 3. It would have been obvious to one skilled in the art to include the laser in a hermetically sealed package with an inert atmosphere in order to maintain the cleanliness of the package so that organics will be prevented from adhering to the laser, as taught by Aikiyo. While Aikiyo does not specifically refer to external cavity lasers, Aikiyo's teachings are applicable to all lasers, since one skilled in the art would want to avoid the degrading effects of organics regardless of the type of laser used. The teachings are also applicable to the parts of a laser, such as the etalon, because such parts could also be affected by degradation due to moisture, organics, and the like.

Claims 2, 7, 16, 18, 22, 25-26, 30, are rejected under 35 U.S.C. 103(a) as being unpatentable over Danielmeyer in view of Aikiyo. Danielmeyer discloses the limitations of the claims as in the above rejections, but does not disclose that the device should be hermetically sealed (and as in claim 22 that the hermetically sealed package contains an inert atmosphere). Aikiyo teaches this with motivation as in the above rejection.

Claims 13-14 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zorabedian, Missey, and Aikiyo as applied to the claims above, and further in view of Bartholomew et al. (US 5,696,785). The limitations of the parent claims are taught as above, but it is not disclosed that there is a carbon drain or moisture trap in the package. Bartholomew teaches a heremetically sealed laser system including a carbon drain (i.e. activated carbon, col. 2 line 36) and a moisture trap (i.e. water immobilizer, col. 2 lines 24-25). It would have been obvious to one skilled in the art to include such elements so that water and organics that may degrade the laser may be removed, as taught by Bartholomew.

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danielmeyer and Aikiyo as applied to the claims above, and further in view of Bartholomew. The limitations of the parent claims are taught as above, but it is not disclosed that there is a carbon drain or moisture trap in the package. Bartholomew teaches these limitations with motivation as in the above rejections.

Claims 6, 11 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zorabedian and Missey as applied to the claims above, and further in view of Lunt (US 6,215,802). Zorabedian and Missey teach the limitations of the above claims, but do not teach a grid generator located in the optical path within the cavity. Lunt teaches a grid etalon, i.e. a grid generator, that may be placed in a laser system (col. 1 line 41 – col. 2 line 20). It would have been obvious to one skilled in the art to use the grid generator of Lunt because this will

accomplish the multiplexing and demultiplexing of signals in telecommunication devices and will meet the standards of the ITU, as taught by Lunt.

Claims 6 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danielmeyer in view of Lunt. Danielmeyer discloses the limitations of the above claims, but does not teach a grid generator located in the optical path within the cavity. Lunt teaches this with motivation as in the above rejections.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zorabedian, Missey, and Aikiyo as applied to the above claims, and further in view of Lunt. The limitations of the parent claims are taught as above, but there is not taught a grid generator located in the optical path within the cavity. Lunt teaches this with motivation as in the rejection of claims 6, 11 and 29 above.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Danielmeyer and Aikiyo as applied to the above claims, and further in view of Lunt. The limitations of the parent claims are taught as above, but there is not taught a grid generator located in the optical path within the cavity. Lunt teaches this with motivation as in the above rejections.

Response to Arguments

Applicant's arguments filed 2/27/2006 ("Response") have been fully considered but they are not wholly persuasive.

- Double patenting rejections based on US 6,788,724

Applicant argues against the obviousness-type double patenting rejection by stating that this is a provisional double patenting rejection, and that a terminal disclaimer will be filed upon allowance of the claims. Response at 8.

The examiner would like to make clear that this is NOT a provisional double patenting rejection. *See* MPEP 804 Part. I.B. (noting that a provisional double patenting rejection is between copending applications). Rather, this is a "regular" double patenting rejection based on an issued patent. The claims will not be allowed until the rejection is withdrawn on the merits or a terminal disclaimer is filed. If this were a provisional rejection, the rejection could be withdrawn without a terminal disclaimer. *See id.* Part I.B.1. Applicant is of course free to wait to file a terminal disclaimer; the examiner only made this point for clarification.

- 35 U.S.C. 103 rejections

Applicant next argues against the 35 U.S.C. 103 rejections. Applicant first argues that Zorabedian and Missey cannot be combined because Zorabedian teaches away from the combination. Response at 9. Applicant notes that Zorabedian teaches away from using DFB lasers, while Missey uses DFB lasers. *Id.* This argument is not persuasive. It is of course true that it is improper to combine references where the references teach away from their combination,

see MPEP 2145 Part X.D, but this is not the case here. Nowhere does the examiner suggest that the DFB lasers of Missey are to be used in Zorabedian. Missey is cited for one purpose only—to show that it was known in the art that optical elements could be translated magnetically.

This argument is quite similar to arguments previously advanced by Applicant. *See* Response of 1/24/2005 at 11-13. The examiner has already responded to these arguments, and incorporates that rebuttal. *See* Office Action mailed 5/5/2005 at 10-11.

The following should also be noted:

> "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). *See also In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review."); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) ("Combining the teachings of references does not involve an ability to combine their specific structures.").
>
> MPEP 2145 Part III.

As noted in the Action mailed 5/5/2005, the examiner disagrees with the contention that the combination renders Zorabedian unsatisfactory for its intended purpose or changes its principle of operation. The Missey and Zorabedian structures are not being physically combined;

the examiner is using the combined teachings of the references to show that in Zorabedian's system magnetic translation of the optical element could be used.

Applicant additionally argues that "the mere fact that references may be combined is not sufficient to establish a *prima facie* case of obviousness unless the reference teachings also suggest the desirability of the combination," Response at 9 (citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)). This is true, but it is also true that art recognized equivalents known for the same purpose may be substituted as support for an obviousness rejection. *See* MPEP 2144.06. In such a situation, an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *See In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). The equivalents analysis is made in the above rejections, and provides additional support for these obviousness rejections. Since this new support for the obviousness of the combination may be considered a new grounds of rejection, this action is made non-final.

Applicant next argues that "[t]he Examiner must show at least some degree of predictability," Response at 9 (citing *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976)). This comports with the requirement that obviousness requires a reasonable expectation of success. *See* MPEP 2143.02 (also citing *Rinehart*). It is not clear how there could *not* be a reasonable expectation of success in the proposed modification. As discussed above, Missey is used to teach that magnetic translation of an optical element is known. There is no suggestion, in Zorabedian, Missey, or in any other prior art of record, that such a combination will not work, or that the magnetic actuation will somehow fail in Zorabedian's system. Again the entirety of the references is not what is being combined; it is the teachings, and those teachings show that the

magnetic translation could be used in Zorabedian's system and it would have been obvious to one skilled in the art to do so. The examiner contends that there is a reasonable expectation of success in making the combination, and the rejections will not be withdrawn on these grounds.

The remaining arguments are merely reiterations of the above as applied to the other claims, and are responded to accordingly above.

Conclusion

See Cao (US 6,459,528) which describes applying a magnetic field to a magneto-optic element as actuation. Col. 8 lines 39-41.

The examiner again points to art previously cited but not relied upon, that shows that optical elements, including etalons, may be actuated magnetically. The references disclose other actuation as well, such as piezoelectric or mechanical. It is believed that these descriptions provide further evidence of the equivalence noted herein. See Gries et al. (US 6,633,595, col. 2 lines 45-47); Spinelli et al. (US 6,507,593, col. 7 lines 59-61); Wright et al. (US 6,314,116, col. 7 lines 29-32).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

James Menefee
May 9, 2006